

Notice of Allowability

Application No.

10/003,530

Examiner

Jeanine A Goldberg

Applicant(s)

YASUDA ET AL.

Art Unit

1634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 12/6/01; 9/16/03.
2. ☒ The allowed claim(s) is/are 30-35.
3. ☒ The drawings filed on 04 March 2002 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/329,318.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
* Certified copies not received: _____.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
(a) ☐ The translation of the foreign language provisional application has been received.
6. ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS must be submitted.
(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
1) ☐ hereto or 2) ☐ to Paper No. _____.
(b) ☐ including changes required by the proposed drawing correction filed _____, which has been approved by the Examiner.
(c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet.

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1 <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 2 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 4 <input checked="" type="checkbox"/> Interview Summary (PTO-413), Paper No. <u>0903</u> . |
| 5 <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449), Paper No. <u>1201</u> . | 6 <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 7 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8 <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9 <input type="checkbox"/> Other _____ |

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

2. The application has been amended as follows:

A) The first line of the specification has been amended to recite --This is a continuation application of U.S. Serial No. 09/666,883, filed September 20, 2000, (now U.S. Patent 6,361,953) which is a continuation application of U.S. Serial No. 09/522,465, filed on March 9, 2000 (now U.S. Patent No. 6,218,126), which is a continuation application of U.S. Serial No. 09/329,318, filed June 10, 1999 (now U.S. Patent No. 6,093,370). This application is related to U.S. Serial No. 09/790,872, filed on February 23, 2001.

3. The following is an examiner's statement of reasons for allowance.

The claim is drawn to a cell component recovering apparatus which comprises a substrate disposed in a separation cell, wherein the substrate has a plurality of independent areas on its surface; a capturing means for capturing each of the cells one by one separately on each of the plurality of independent areas; means for applying a DC field; temperature measuring means; heating or cooling means for heating or

cooling the surface of the substrate at said one area and controlling means for controlling selectively the temperature of the surface of the substrate at said one area.

The prior art fails to teach at least a substrate with a capturing means for capturing each of the cells one by one separately on each of the plurality of areas and a controlling means for controlling selectively the temperature of the surface of the substrate at said one area.

Yager et al. (WO 96/42012, December 1996) teaches a separation matrix for analysis of biopolymers. The apparatus separation matrix contains a matrix with a solution, solution electrodes and applying an electric field between the solution electrodes. While Yager teaches a substrate and at least two electrodes disposed on the substrate, Yager fails to teach a capturing means for capturing each of the cells one by one separately on each of the plurality of independent areas and a controlling means for controlling selectively the temperature of the surface of the substrate at said one area.

Wilding et al (US Pat. 5,587,128, December 1996) teaches a device with a heating/cooling element (col. 16). The element, however, is used to regulate the temperature cycle in the amplification chamber. The temperature control means would be unable to heat the surface of the substrate at one area of the plurality of independent areas to a predetermined temperature.

Cheng et al. (US Pat. 6,280,590, August 28, 2001) teaches a device which allows specific cells from various cell mixtures to be separated, lysed and digested on the chip. As seen in Figure 3A, a checkerboard style electronic addressing of five by

five arrangement of circular electrodes where each electrode has opposite biasing as its nearest neighboring electrode. Cheng teaches using a device which includes a cell sample and dielectrophoresis. The sample is introduced into the flow cells, the sample is subjected to an electric field to dielectrophoretically separate the desired cells from the sample, the remaining cells are subjected to a series of electronic pulses to lyse the cells (col. 5, lines 5-15). As seen in Figure 2, the circular electrodes and counter electrodes are each present on the chip. The counter electrodes are not opposed to the substrate as required by the instant claims. Thus, the cells would not be captured one by one separately on each of the independent areas. Additionally, the electronic lysis performed to lyse the cells includes a series of pulses of about 400 pulses. The alternating pulses pushed and pulled material out of the cells (col. 11, lines 25-33). This electronic lysis is not a controlling means for controlling selectively the temperature of the surface of the substrate at said one area. Moreover, Cheng does not lyse single cells, but rather a plurality of captured cells.

A terminal disclaimer has been filed in the instant application over for 6,093,370 and 6,218,126 and 10/003,305 and 10/086,713.

Therefore, since the art neither teaches nor suggests the claimed invention, the instant claims are allowable.

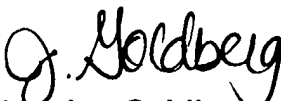
4. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably


accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Jeanine Goldberg whose telephone number is (703) 306-5817. The examiner can normally be reached Monday-Friday from 6:00 a.m. to 3:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jones, can be reached on (703) 308-1152. The fax number for this Group is (703) 305- 3014.

Any inquiry of a general nature should be directed to the Group receptionist whose telephone number is (703) 308-0196.


Jeanine Goldberg
Patent Examiner
November 4, 2003


BJ FORMAN, PH.D.
PRIMARY EXAMINER